

Federal Fiscal Year 2001
Nonpoint Source Control Program Annual Report

Prepared By The
Office of Watershed Protection

South Dakota
Department of Environment
And Natural Resources

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Pierre, South Dakota 57501

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South Dakota

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I. NPS PROGRAM HISTORY

In 1987 Congress acted on the need to expand the nation's pollution control efforts when they included provisions to control nonpoint source pollution in Section 319 of the reauthorized Clean Water Act. Nonpoint source pollution as defined in the Act, is pollution caused by diffuse sources that are not regulated as point sources. In more basic terms, NPS pollution can be a variety of contaminants (e.g., sediments, nutrients, etc.) that are delivered to surface waters by way of runoff or leached downward into groundwater. Some common sources of NPS pollution include run off from urban streets and parking lots, construction sites, and agricultural lands.

Given the size of the agricultural industry in South Dakota, agriculture and its associated activities have been the primary focus of the state's NPS program. Since 1988, a majority of the state's federal funding for NPS control has been directed toward locally sponsored projects promoting voluntary NPS pollution control on agricultural lands. These funds have generally been used to implement various information and education activities and/or provide the necessary financial and technical assistance to landowners implementing best management practices (BMP) on their land. Section 319 funding has also been used to support local initiatives to evaluate water quality conditions and determine sources and causes of NPS pollution within priority watersheds.

Since the reauthorization of the Clean Water Act in 1987, the South Dakota NPS Pollution Management Program has used Section 319 and 604(b) funding to support over 100 nonpoint source projects throughout the state. While the size, target audience, and structure of the projects have varied significantly, they all share the same basic objectives. These common objectives are: 1) increase public awareness of NPS pollution issues; 2) identify, quantify and locate sources of nonpoint source impairment; 3) reduce/prevent the delivery of NPS pollutants to waters of the state with emphasis on meeting targets established through Total Maximum Daily Loads (TMDLs); and 4) disseminate information on effective solutions to NPS pollution where it is threatening or impairing uses.

State and local projects supported with Section 319 funding have been of three different types. These project types or categories are: 1) assessment/development phase projects; 2) educational projects; and 3) watershed projects. Although most projects clearly fit into one of these categories, there have been several projects that included components from all three categories. A portion of the Section 319 funds awarded to the state has also been used to assess major aquifers in the state as well as promote and implement practices that prevent groundwater contamination.

The primary purposes of assessment/development phase projects are to identify beneficial use impairments or threats to specific water bodies and determine the extent to which those threats or impairments are due to NPS pollution. Highest priority is given to water bodies identified on the 303(d) list of impaired water bodies. TMDLs are prepared for the 303(d) listed water bodies as a part of the assessment project. Work activities during a development phase project generally involve an inventory of existing data and information and supplemental monitoring, as needed, to allow an accurate assessment of the watershed. Through these efforts the local project sponsors are able to: 1) determine the extent to which beneficial uses are being impaired; 2) identify specific sources and causes of the impairments; 3) establish preliminary pollutant reduction goals or TMDL endpoints; and 4) identify practices or management measures needed to reduce the pollutant sources and restore or maintain the beneficial uses of the water body. Assessment/development phase projects are generally one to two years in length.

Educational projects, as the name implies, are designed to disseminate information on various NPS pollution issues, ranging from specific sources or causes of NPS pollution to management solutions that can be used to reduce NPS pollution. Educational tools typically used by the sponsoring entities include brochures, all media (TV, radio, newspaper, etc.), workshops, “how to” manuals, tours, exhibits, and demonstrations. These projects are generally one to five years in length.

The watershed projects are the most comprehensive projects implemented through the NPS Pollution Management Program. These projects are typically the most long-term in nature and designed to address documented NPS pollution impacts and beneficial use impairments within approved priority watersheds. Common objectives for a watershed project are to: 1) protect and/or restore impaired beneficial uses through the promotion and voluntary implementation of best management practices that reduce/prevent documented NPS pollution loadings; 2) disseminate information on local NPS pollution concerns and effective solutions to those concerns; and 3) evaluate the projects’ progress toward identified use attainment or NPS pollutant reduction goals. Watershed projects are generally four to ten years in length, depending on the size of the watershed and extent of NPS pollution impacts.

The South Dakota Nonpoint Source Pollution Management Program will continue to be a voluntary program, primarily directed toward locally sponsored initiatives that strive to reduce/prevent NPS pollution impacts to the beneficial uses of the state’s water resources. As a result, successful delivery of the NPS Program must include coordination with many local/state/federal agencies as well as private organizations. Through this coordination and formation of strong partnerships, the necessary financial and technical resources will be available to local sponsors to meet their goals and demonstrate that nonpoint source pollution control/prevention can be accomplished effectively and voluntarily. Ultimately, within South Dakota, the success of any NPS pollution control project will be dependent on the ability of the local sponsors and their partners to demonstrate to land owners and managers and the general public that NPS pollution control and water quality improvement practices can co-exist with their businesses.

NPS Management Plan

EPA required all states to “upgrade” their nonpoint source management plans to address nine key federally mandated elements in order to access Section 319 “incremental” grant funds. South Dakota’s revised plan was approved by EPA on March 30, 2000. This plan expands on earlier editions and continues to achieve improved water quality through voluntary actions developed in partnership with the landowners and land managers. Primary tools include technical and financial assistance as well as provision of better information and education. One of the keystones of this program is the Nonpoint Source Task Force composed of about sixty agencies, organizations and tribal representatives who coordinate diverse views and resources to make a workable program which benefits the landowners as well as the environment. The management plan is available upon request or can be accessed at the DENR web site www.state.sd.us/denr/watershed.

The management plan envisioned a broad assessment of the state’s waters and sorting them into three “tiers” of priority for actions. That approach has been supplanted by a program of assessment and implementation driven by the 303(d) listing of impaired water bodies and TMDLs to address the impairments. Since the 303(d) list of impaired waters was expanded in 1998, considerable additional effort has gone into developing and implementing work plans to achieve TMDLs for all of the impaired waters over 13 years. TMDL assessment and implementation project priority has superceded other priority methodologies previously used. The 303(d) list identified 171 impaired water bodies needing TMDLs, 122 of which needed to address nonpoint sources of water pollution. As of September 30, 2001, 21 nonpoint source TMDLs had been completed, one water body was determined not to be impaired and an additional 61 nonpoint source TMDLs were in progress.

Progress in implementing the management plan is for the most part ahead of schedule. The NPS program had committed to building to an ongoing program that initiates and completes 11 assessments per year and initiates and completes 5 implementation projects per year. That effort is ahead of schedule. Tasks 3-6 and 12-16 were superceded by the 303(d) / TMDL priority approach. Task 11, the sorting and ranking of streams based on ecoregions, has been suspended because of a lack of resources and priority. Task 28, the post-project assessments, is behind schedule also due to a lack of resources and priority. All other tasks are on schedule, have been completed or, in some cases, have exceeded their planned outputs.

319 Projects Initiated

The following projects received 319 grant awards and were initiated during this reporting period:

<u>STAFF & SUPPORT</u>	\$ 575,000.00
<u>319 PROJECT GRANT</u>	\$3,267,900.00

<u>Title</u>	<u>Type</u>	<u>Base</u>
Belle Fourche River	Assessment	\$ 226,742
Kingsbury County Lakes Assessment	Assessment	\$ 250,480
Wall Lake Post Assessment	Assessment	\$ 37,000
Animal Nutrient Management Team	Implementation	\$ 592,275
Bachelor Creek	Implementation	
Buffer Planning & Technical Assistance	Implementation	\$ 22,800
Enemy Swim Lake	Implementation	
Grassland Management	Implementation	\$ 500,000
Upper Big Sioux River	Implementation	
CATEGORICAL SUM		\$ 1,629,300

Active 319 Projects

In addition to the above projects, the following projects were open and active during this reporting period:

Bad River Basin Projects	Bad River National Watershed Monitoring Bad River Phase III Hayes and Waggoner Lakes TMDL
Belle Fourche River Basin Projects	Bear Butte Creek Riparian Demonstration
Big Sioux River Basin Projects	Bachelor Creek Assessment Blue Dog Lake Assessment Clear Lake Implementation Central Big Sioux TMDL Lake Poinsett Watershed Upper Big Sioux River Watershed North Central Big Sioux / Oakwood Lake TMDL Lakes Herman/Madison/Brant Implementation
Cheyenne River Basin Projects	Lower Rapid Creek TMDL Rapid City Stormwater
Grand River Basin Projects	Shadehill Lake Protection Staffing & Support
James River Basin Projects	Cottonwood & Louise TMDL Firesteel Creek Implementation Lake Redfield Restoration Moccasin Creek TMDL Jones & Rosehill Lakes TMDL Loyalton and Cresbard Lakes TMDL Lake Faulkton Implementation White Lake Dam TMDL South Central Lakes TMDL

Minnesota River Basin Projects	Big Stone Lake/Little Minnesota Cochrane & Oliver Lakes TMDL Lake Hendricks Watershed
Missouri River Basin Projects	Medicine Creek Assessment
Statewide / Regional Projects	Animal Waste Team (Buffer salesmen) Animal Waste Team III Bootstraps Ground Water Monitoring Network Nonpoint Source Information / Education 1994 Nonpoint Source Information / Education 1996 Statewide Lakes Assessment

319 Projects Closed

The following 319 projects have been closed. Final reports for these projects have been filed with EPA and are also available through the South Dakota Library Network.

Bad River Basin Projects	Bad River Phase II Upper Bad River Demonstration
Belle Fourche River Basin Projects	None
Big Sioux River Basin Projects	Big Sioux Well Head Protection Lake Campbell Watershed Restoration Lake Kampeska Watershed Pickerel Lake Protection Wall Lake
Cheyenne River Basin Projects	Foster Creek Riparian Demonstration - Stanley Co. Piedmont Valley Assessment
Grand River Basin Projects	None
James River Basin Projects	Lake Byron Watershed Clear Lake Assessment - Marshall Co. Foster Creek Riparian Demonstration - Beadle Co. Lake Mitchell Watershed Assessment Mina Lake Water Quality Ravine Lake Watershed Richmond Lake Watershed
Minnesota River Basin Projects	Big Stone Lake Big Stone Lake Restoration II Cochrane & Oliver TMDL Lake Cochrane Protection
Missouri River Basin Projects	Burke Lake
Vermillion River Basin Projects	Swan Lake Restoration

Statewide / Regional Projects	Abandoned Well Sealing Animal Waste Management I Animal Waste Management II Coordinated Resource Management I Coordinated Resource Management II East River Area Riparian Demonstration East River Riparian Demonstration II East River Riparian Grazing I Nitrogen & Pesticides in Ground Water Nonpoint Source Information & Education 1994 Nonpoint Source Information / Education 1989 Rainfall Simulator Riparian Grazing Workshop South Dakota Association of Conservation Districts South Dakota Lake Protection Statewide Lake Assessment
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604(b) Grant

The total grant amount for the FY1998 - 2000 604(b) grant was \$271,058. Of this total, \$250,549 was obligated for eight water quality development projects. Two of these projects were supported using other funding programs, leaving three projects active.

Approximately \$26,000 was available to support department staff with implementation of the 604(b) program and assist with Total Maximum Daily Load development. These efforts included developing grant applications, workplans, projects, and contracts, and providing for project oversight, meetings, and voucher processing. These funds require no match and can be used on short notice to initiate activities in support of the nonpoint source control program.

604(b) Projects Initiated

The following 604(b) project was initiated during this reporting period:

PROJECT	CONTRACTUAL AWARD
Water Quality Database Management Support	\$ 89,220

Active 604(b) Projects

These 604(b) projects were active during this reporting period:

PROJECT	CONTRACTUAL AWARD
Wylie Pond/Moccasin Creek Watershed TMDL	\$ 34,450
Bear Butte Creek TMDL Assessment	\$ 15,500
Lake Alvin/Nine Mile Creek TMDL - Closed	\$ 36,200
Personnel	\$ 26,105

Closed 604(b) Projects

The following 604(b) projects have been completed and are closed:

Bad River Basin	Bad River Phase IA Bad River Phase IB
Belle Fourche River Basin	Streambank Erosion Assessment-Upper Whitewood Creek Whitewood Creek Streambank Assessment Project Whitewood Creek Watershed Project Planning
Big Sioux River Basin	Big Sioux Aquifer Protection Project Big Sioux Aquifer Study Big Sioux River Bank Stabilization Demonstration Project Big Sioux River Riparian Assessment (Moody/Minnehaha) Pelican Lake Control Structure Feasibility Lake Alvin/Nine Mile Creek TMDL Lakes Herman, Madison, Brandt Project Planning Lake Poinsett Project Planning and Design Upper Big Sioux Watershed AGNPS
Cheyenne River Basin Projects	Develop NPS BMPs Western Pennington Co. Drainage Dist. Galena Fire Project Rapid Creek and Aquifer Assessment Project Rapid Creek NPS Assessment Project Rapid Creek Stormwater Impact Prioritization
Grand River Basin	Grand River Watershed TMDL
James River Basin	Broadland Creek Watershed Study Firesteel Creek/Lake Mitchell WQ Needs Assessment - Landowner Survey Lake Faulkton Assessment Project Lake Louise Water Quality Monitoring Mina Lake Water Quality Project Ravine Lake Diagnostic/Feasibility Study Turtle Creek/Lake Redfield Landowner Survey
Minnesota River Basin	Blue Dog Lake/Enemy Swim Septic Leachate Survey Lake Cochrane/Oliver TMDL Fish Lake Water Level and Quality Study Lake Hendricks Restoration Assessment Lake Traverse/Little Minnesota River Land Inventory
Missouri River Basin	Burke Lake Diagnostic/Feasibility Study Lake Andes Watershed Treatment Project Platte Lake Planning Randall RC&D Implementation Planning
Moreau River Basin	None
Niobrara River Basin	None
Red River Basin	None

Vermillion River Basin	Vermillion River Basin Watershed Planning West Yankton Sanitary Sewer Survey
White River Basin	White River Preservation Project White River Watershed Data Collection Project
Statewide	Chemical Containment Demonstrate Slash Pile Use Control Erosion on Fragile Soils Detention Cell Demonstration Project East River Riparian Demonstration Project Forestry BMP Pamphlet Groundwater Protection Project Livestock Waste Management Handbook Local WQ Planning Through Hydrologic Unit Planning Pesticide and Fertilizer Groundwater Study Pesticide and Nitrogen Program Riparian Area Forestry Project Stockgrowers Speaker Water Quality Study of SD Glacial Lakes and Wetlands Wetland Assessment for the Nonpoint Source Program North Central RC&D HU Implementation

GRTS

South Dakota has entered 319 grants data into the EPA GRTS data base. This data base contains detailed information about 319 funded projects including funding, goals, tasks and status. For more information on accessing the GRTS system please contact DENR.

The department has invested a great deal of effort updating and maintaining the EPA system this past year. In March, we received an EPA analysis of missing elements for FY 1994 - 2000 funded projects. In April and May, the department entered mid-year evaluations and the majority the mandated elements missing from open grants. Much of this data was lost when EPA changed servers on the web-enabled system the end of May. As the department was not able to tell EPA exactly what data or when it had been uploaded, EPA was not able to recover the information. The department diligently worked the month of October and first part of November to re-enter the missing data as well as year-end reports and FY 2001 project information. The year-end reports and FY2001 data was entered before the November 1 deadline. Region 8 granted until November 15, 2001 to bring the remaining elements up-to-date. Due to the department prioritizing GRTS entry, this EPA requirement was met.

Staff & Support

During the reporting period, the Watershed Protection Program employed 15.5 full time equivalents including an office administrator, a secretary, twelve environmental scientists, and two natural resources engineers and utilized portions of other department staff as needed. Some services were also provided under a consultant contract.

Goals of the staffing plan are to:

- Provide sufficient administrative and financial support for the watershed/nonpoint source pollution control program to create and maintain functional, well-managed projects, and sustain an effective statewide program.
- Develop and conduct watershed and site-specific assessments in priority areas for the preparation and implementation of TMDLs.
- Provide sufficient technical support for the watershed/nonpoint source pollution control program to create and maintain effective projects using state-of-the-art science and engineering.
- Provide staff to implement the information and education work plan and activities, and provide general information and education support to the program and project sponsors.
- Facilitate partnering and coordination among agencies and project sponsors in the development and implementation of nonpoint source pollution control projects.

Detailed information about the program is available in the program staff & support work plan.

During this reporting period the program participated with many groups and agencies. Staff routinely attended meetings of the South Dakota Association of Conservation Districts Board of Directors, SD Board of Water and Natural Resources, SD Conservation Commission, USDA Technical Committee, SD Nonpoint Source Task Force and local conservation districts which sponsored or were considering sponsoring nonpoint source control projects. Staff also routinely met with agency staff from the US Army Corps of Engineers, Natural Resources Conservation Service, US Forest Service, Environmental Protection Agency, US Bureau of Reclamation, SD Department of Game, Fish and Parks, SD Department of Agriculture, and many other state and local governments and organizations including agricultural producer organizations.

Every active project listed in this report received staff assistance during this reporting period, often on at least a weekly basis. Staff initiated 20 contracts obligating \$3,371,931.20 and processed 200 federal funds payment requests totaling \$1,750,180.17. Staff also processed 45 state fund payment requests totaling \$331,275.70.

Training

DENR nonpoint source program staff routinely train watershed project staff hired by local project sponsors. This is usually one-on-one training as needed particularly at the start of new assessment and implementation projects. At the beginning of each 319 funded project, DENR staff meets with the local sponsor staff and reviews the Project Implementation Plan. The local staff is presented with a copy of the DENR Water Project Packet which is then reviewed with them. The packet contains information on record keeping, reporting vouchering, match documentation, EPA and DENR guidance and policy memorandums, etc. Any staff involved in

monitoring activities also receives training in sample and data collection and a review of quality assurance procedures.

Project Guidance & Oversight

Because DENR staff work closely with project sponsors throughout the process of identifying, assessing and abating nonpoint sources of pollution, the need for formal project oversight is reduced. Project staff are comfortable with calling DENR staff for advice and assistance when problems arise and DENR staff are in frequent communication with project staff and are in a position to assess progress. Even so, it is good to occasionally take an unbiased look at projects and procedures. This year we initiated third party project reviews utilizing the services of Pat Kuck of the Enviromed consulting firm. Mr. Kuck's long service with NRCS and as a consultant to DENR gave him a unique position to evaluate project progress. During this reporting period he reviewed the Lake Poinsett, Firesteel Creek and Animal Nutrient Management Team projects. A detailed report of each was filed with DENR and EPA. In general, he found that the projects were well managed and achieving their goals. He did identify two issues that needed follow-up.

He identified a potential problem with some projects not using a written contractual agreement to transfer cost share funds to landowners. This left the possibility that a landowner could accept cost share funds and then not implement or maintain the agreed upon BMP. DENR subsequently issued guidance requiring written agreements for funds dispersal and suggested language. This guidance specifies operation and maintenance agreement conditions between project sponsors and landowner receiving cost share for BMPs.

Mr. Kuck also found that there was some confusion regarding how, when and where projects would receive design and other technical assistance from the Animal Nutrient Management Team and NRCS staff. DENR subsequently met with NRCS and crafted a guidance memorandum on the subject. NRCS will also meet with project staff at the joint ND/SD coordinators meeting in 2002 to discuss the guidance.

EPA and DENR staff also visited projects jointly during this reporting period and reviewed their operations both in the office and in the field. In August, the Bachelor Creek, Lakes Herman, Madison & Brant, Lake Poinsett, Upper Big Sioux River, and Bigstone Lake Projects were visited. EPA subsequently filed a report. In October EPA and DENR visited the Lower Rapid Creek and Spring Creek project sites.

The Nonpoint Source Task Force also conducted onsite visits in July. They visited sites demonstrating various assessment techniques and Best Management Practices developed under the East River Riparian, Lake Poinsett and Central Big Sioux River projects.

Information and Education

The Water Resources Assistance Program has maintained a web site since 1998 to provide better access by the public to program ideas, business and information. The site continues to expand with increased demand and number of users. The site currently averages over 200 hits per month.

The web site provides access to South Dakota's watershed nonpoint source water quality issues and activities. Some of these include:

- Total Maximum Daily Load (TMDL) information
- 303(d) Water body List
- Watershed Assessment projects
- Watershed Restoration projects
- Publications and reports
- Nonpoint Source Task Force
- Nonpoint Source Program information and education activities
- Pollution Prevention Program
- Links to related web sites

The URL address for the Watershed Protection site is:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wporg.htm>

The URL for the Department of Environment and Natural Resources homepage is:

<http://www.state.sd.us/denr/denr.html>

The South Dakota NPS I & E Program has been operational for nearly 10 years. Since its inception, the program has relied primarily on community based partnerships to deliver NPS information and action opportunities to the state's residents. This approach has resulted in an outreach and information transfer mechanism that:

- is consistent with the Clean Water Action plan,
- addresses priorities identified in the South Dakota – EPA Performance Partnership Agreement,
- enjoys broad-based support from agricultural and environmental groups and governmental agencies, and
- is holistic and sustainable.

The program is implemented through the DENR Water Resources Assistance Program.

Activities selected and undertaken through the program are:

- based on local, state and national priorities,
- chosen to complement actions being completed by other resource management groups and agencies,
- designed to effectively reach an identified target audience, and
- part of a statewide NPS I & E Strategy adopted by the South Dakota Nonpoint Source Task Force.

The NPS priority areas addressed by the strategy are:

- animal feeding operations (AFOs),
- nutrient management, and
- TMDLs.

Selected NPS I & E products completed or in production during FY 2001 to address the priority areas follows. A comprehensive summary of the state's NPS I & E outreach activities is in Appendix A. Many of the products referenced are available by visiting:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

or the URLs listed in Appendix A.

Selected FY 2001 SD NPS Information and Education Products.

Product	Target Audience	Priority Area	Comments
Video/CD Precision Farming	General Agriculture	TMDLs Nutrient Management	Provides farmers with information on the use of GPS/GIS based technology to manage crop production to reduce pollution and improve profits. Segments played as a four part series on Today's Ag. The weekly television program reaches over 40,000 viewers.
Manure BMPs	Livestock Producers General Rural/Urban	AFOs Nutrient Management TMDLs	Presents practices that producers can and are using to prevent pollution from livestock operations. Segments played as a four part series on Today's Ag. Available in video and CD format and by visiting the DENR web site.
Onsite Waste Water Treatment systems	Homeowners Planning and Zoning	TMDLs Nutrient Management	Produced to provide homeowners and public officials easily understood information about septic system installation and maintenance. Airing as a feature series on Today's Ag scheduled during December 2002.

SD Forest and Water Adventures	Middle and High School Students	Nutrient Management TMDLs	The CD was produced by conversion and upgrading of educational modules previously developed in a touch screen format. The conversion was completed to make the modules more use readily available to the target user group. A copy has been provided to all SD middle school science teachers. Copies may be ordered by visiting the DENR web site. This program has been nominated as a "GODORT Notable Document".
Exhibits			
Managing Manure for Profit and the Environment	Livestock Producers General Agriculture	AFOs Nutrient Management	Third year for the exhibit at DakotaFest. Over 3,200 individuals visited the 2001 exhibit. The 2001 exhibit included the integration of the Core 4 conservation practices into manure management. The exhibit was used by US Secretary of Agriculture Ann Veneman and US Representative John Thune as the location for a news conference. Specially designed version of the exhibit was set-up by project partners at several ag commodity group conventions and expositions.
Phosphorus-Base Nutrient Management	Livestock Producers General Agriculture	AFOs Nutrient Management	The display summarizes the elements associated with developing and implementing a phosphorus-based TMDL. The exhibit was set-up at the 2001 Phosphorus, Manure and Water Quality Conference and 2001 SD Assoc. of Conservation Districts Convention. Total attendance approximately 250.

NPS Educational Resources	Middle and High School Science Teachers	TMDLs	The exhibit was designed to increase awareness of NPS related educational materials that teachers could access for use in their classrooms. Over 150 teachers attended the conference. Nearly 30 attended a presentation to learn about <i>SD Forest and Water Adventures</i> .
Surveys Barriers to the Adoption of Not-till Farming Practices	Resource Planners and Assistance Providers	Nutrient Management TMDLs	The survey was conducted to determine barriers to the adoption of no-till farming. The results will be used to develop more effective outreach and information strategies and materials. The results were presented to the SD NPS Task Force and are posted on the DENR web site.
BMP Demonstration and Evaluation Managed Grazing	Livestock Producers Resource Managers	Nutrient Management TMDLs	Three sites of the six sites are planned as part of the Grassland Management and Planning Project are established. Four field days held at the sites during 2001 were attended by approximately 250 producers and agency personnel. Articles about the project and sites were published in 18 different newspapers with a total circulation of over 57,000.

Silviculture BMP Audit	Timber Industry Resource Managers	TMDLS	Field audits of three recent timber sales in the Black Hills to determine the how effectively the industry is implementing BMPs was conducted by a multi-disciplinary team of logging industry, agency and environmentalists. The audits revealed the industry is effectively installing needed BMPS and provided information that will be used to revise existing state Silviculture BMP manuals and guides.
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Other Resources

While funds provided through the Environmental Protection Agency play an important role in nonpoint source control in South Dakota, the program also takes advantage of resources from many other sources, public and private. The "South Dakota Nonpoint Source Program Manual" lists many of the available sources of resources. A few are summarized here.

Natural Resources Conservation Service

United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) has replaced the Great Plains Conservation Program - however, there are still 147 active Great Plains Contracts in South Dakota that funded \$27,146 of conservation work in 2001.

EQIP Priority areas - There were twenty-four priority areas funded in 2001 for \$2,712,326. The break down for each priority area is as follows:

American Creek HU	\$ 48,380
Bad River Watershed	\$522,761
Bear Creek Watershed	\$ 48,962
Belle Fourche River	\$362,167
Clear Lake Restoration (Deuel Co.)	\$ 50,000
Deep Creek Watershed	\$107,415
Fall River Water Users	\$ 66,801
Firesteel Creek	\$116,042
Grand River Watershed	\$200,276
Lake Faulkton Watershed	\$117,921
Lower Little Minnesota River - Big Stone Lake	\$ 19,492
Medicine Creek Drainage	\$ 22,574
Medicine Root Watershed	\$131,689
South Fork Moreau River Watershed	\$ 76,044

Rousseau Creek Watershed	\$ 13,013
Southwestern Little White River Watershed	\$ 19,222
Standing Rock Reservation (funded by North Dakota)	\$ 71,601
Upper Waubay Basin Watershed	\$ 55,398
White River Watershed	\$ 19,262
Lake Poinsett Watershed Project	\$ 78,840
Box Elder Creek Watershed	\$108,959
Spring Creek/Battle Creek Watershed	\$ 79,247
Cheyenne River Watershed	\$287,708
Little Missouri River Watershed	\$ 88,552

The EQIP statewide resource concerns for 2001 were funded at \$1,132,768 and were broken down as follows:

Water Quality and Quantity	\$588,420
Grazing Land Health and Productivity	\$373,782
Erosion Control on Highly Erodible Land	\$106,441
Wildlife Habitat Functions and Values	\$ 64,125

The small watershed program funded two PL-566 projects in South Dakota in 2001. The projects were the Lower Little Minnesota River - Big Stone Lake, land treatment project in northeast South Dakota and the Fall River Water Users rural water system in southwestern South Dakota. The land treatment project was funded at \$167,900, and the rural water project was funded for \$200,000 in 2001.

The NRCS level of technical assistance will remain consistent with that of the prior years. No major changes for staffing or funding are expected. Even though staffing will be maintained at current levels, technical assistance may be a problem due to mandated workload requirements.

The Wetlands Reserve Program provided \$3,500,000 in 2001 for both permanent and 30 year easements, which restored 3,852 acres of wetlands in South Dakota.

The Emergency Watershed Protection Program (EWP) floodplain easement has provided offers of \$2,730,448 for permanent protection on 5,366 acres of floodplains.

The Conservation Reserve Program (CRP) has 1,418,526 active acres in 2001. These lands are put into permanent vegetative cover, which is very effective in reducing erosion and improving water quality. In addition, 116,653 acres were in Continuous Sign-up CRP. This program is for protection of sensitive acres for tree belts, buffers, grassed waterways etc. that don't have to go through the bid process to be eligible for the program.

The Wildlife Habitat Incentives Program (WHIP) funded 49 contracts on 36,215 acres for \$250,658 in new contracts in 2001. Interest in WHIP remains high and an additional 94 contracts totaling over \$500,000 could have been funded if funding was available.

The Soil and Water Conservation Assistance Program (SWCA) is a single year program that was funded for the first time in 2001. South Dakota funded 20 contracts on 40,376 acres for \$448,976. The SWCA program provided financial and technical assistance to participants to address threats to soil, water and related natural resource concerns.

US Forest Service

Public notices and other notices of proposed US Forest Service actions and permits were reviewed and coordinated as necessary. Assistance was also provided to the Forest Service in assessing damage and in preparing prevention plans for potential water quality impacts in the aftermath of the Lookout Mountain and Jasper fires in the Black Hills. Coordination with the Forest Service on TMDL water bodies within the forest boundaries has been on ongoing process. The Forest Service also participated in the BMP evaluations discussed in the I&E section of this report.

South Dakota Water & Environment Fund

The Water Resources Assistance Program administers the Consolidated Water Facilities Construction program which provides state grants and low interest loans for projects on the State Water Facilities Plan. Structural and construction Best Management Practices like dredging, animal waste facilities and shoreline stabilization are eligible for cost share funds as part of a watershed restoration project. The program also administers a special appropriation from the department's environmental and natural resources fee fund which provides state funds for TMDL assessment projects. Awards for this reporting period were:

<u>Project</u>	<u>Amount</u>	<u>Source</u>
Belle Fourche River Watershed Assessment	\$75,580	Fee Fund
N. Central Big Sioux / Oakwood Lake Assessment	\$42,419	Fee Fund
Kingsbury County Lakes Assessment	\$102,644	Fee Fund
Clear Lake Watershed Restoration	\$95,000	Consolidated
Turtle Creek / Lake Redfield Restoration	\$25,000	Consolidated

SD Conservation Commission

The South Dakota Conservation Commission provides grants of state funds to conservation districts for implementation of Conservation Best Management Practices through their projects. In this reporting period, they awarded \$784,034 of which \$650,744 directly supported NPS projects. DENR staff coordinated with the Commission, participated in project grant application reviews and attended all Commission meetings.

319 Grant Match

Nonfederal match of 40% of project expenditures is required to match EPA 319 grants. South Dakota has a history of over matching 319 grants even though the state takes a very conservative approach to accumulating and approving nonfederal match. Since much of the match comes from construction and implementation of BMPs, most match occurs in the later years of the 319

grants. A summary of documented nonfederal match is displayed in Appendix B.

WATER QUALITY IMPROVEMENTS - BAD RIVER

The Bad River watershed, 3,172 square miles that drain into the Missouri River at Ft. Pierre, South Dakota, consists primarily of highly erodible shallow and dense clays. The river does not support its assigned beneficial uses primarily because its sediment load has been an average of 3.25 million tons per year, which also severely impacts the Lake Sharpe impoundment of the Missouri River. The sport fishery in this reach of the Missouri River contributes about \$2.5 million annually to Pierre's economy, but only when it is not impaired by turbidity from the Bad River. When the Bad River is flowing, the value essentially goes to zero.

The Bad River's sediment load settles in the Missouri River near Pierre and Ft. Pierre and has significantly filled the channel. The result is increased flooding in the municipalities and surrounding area, and a consequent reduction in the water that the U.S. Army Corps of Engineers will release from the Oahe Reservoir during extremely cold periods. The loss of power generation during these times has an average annual value of \$12.5 million. Beyond economic value, however, is a greater concern; namely, that the loss of power generation during critical winter conditions may result in regional multi-state brown- or black-out conditions with consequent loss of life. If the sediment continues to accumulate, the Corps of Engineers predicts flow restrictions and subsequent power generation curtailments even under open channel flows.

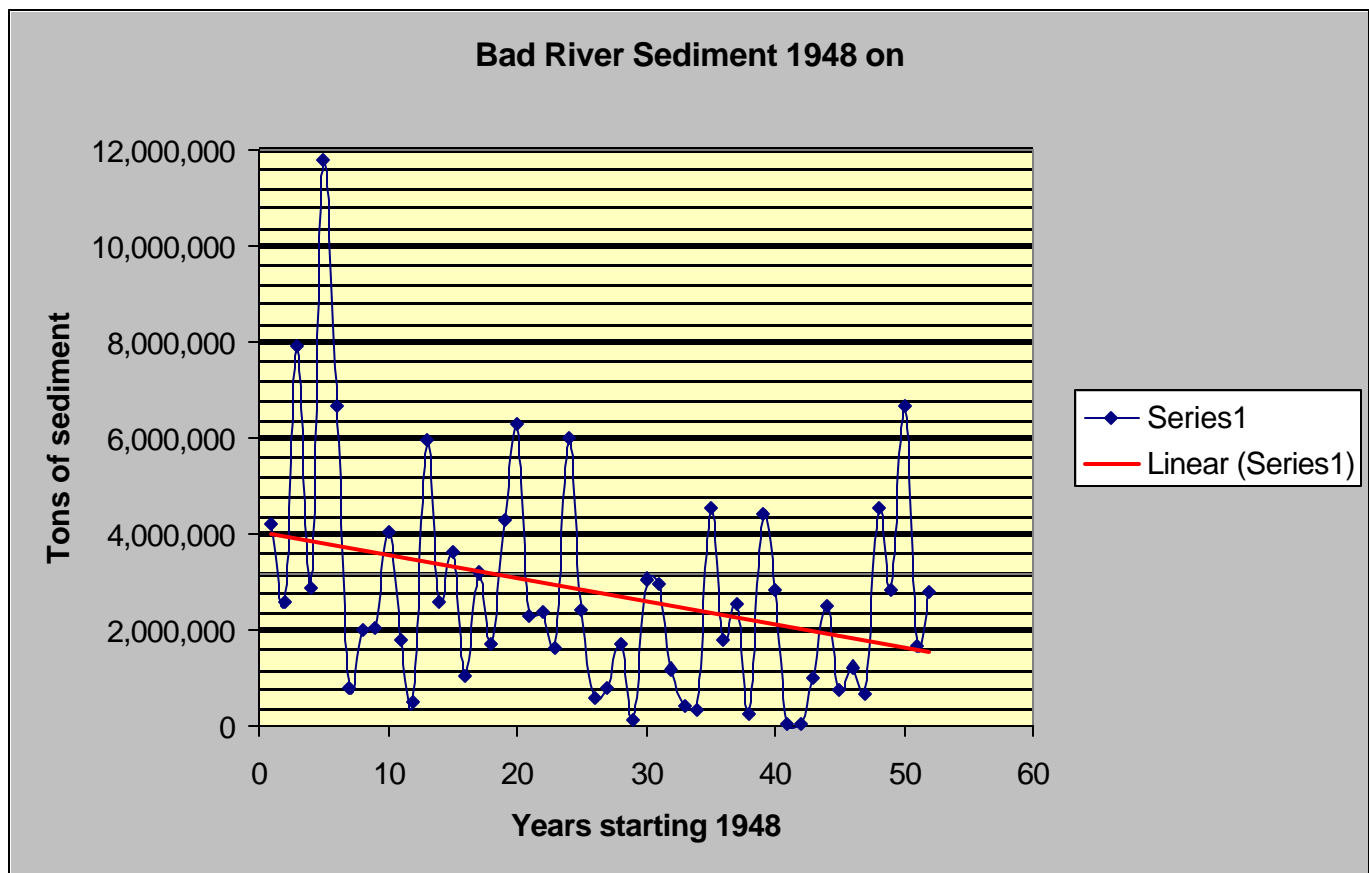
People generally believed that the sediment came mostly from South Dakota badlands in the upper basin and tablelands that had been converted from grasses to wheat production. The assessment program determined, however, that the lower third of the watershed produces two-thirds of the sediment -- primarily from gully erosion on grazing lands and stream bank scour. The next step toward a solution was to begin a demonstration project in the 250-square-mile Plum Creek subwatershed to illustrate the feasibility of pollution controls. The practices were carefully chosen not to jeopardize the economic stability of ranches and farms in the project area. In the Bad River watershed, the project promoted an array of practices: planned grazing systems, proper grazing use, erosion control structures, riparian revegetation, range seedings, water spreader systems, and alternative stock watering facilities.

Results of the demonstration project exceeded expectations and achieved a significant reduction in erosion and sediment delivered to the Bad River. In 1990, Plum Creek delivered 82.7 tons of sediment per acre/foot of runoff. The average annual sediment delivery during 1993 through 1995 was 10.2 tons of sediment per acre/foot of runoff. These data were collected by the U.S. Geological Survey in cooperation with Stanley County Conservation District and published in the annual USGS Water Resources Data for South Dakota, 1990 through 1995. Years 1991 and beyond were unusually high precipitation years. Nevertheless, a significant reduction of sediment delivery was apparent. Increased vegetation in the formerly eroded streambanks and riparian areas

helped control water yield. Improved land resource management by project cooperators further reduced total runoff.

Landowner participation in the Plum Creek watershed was approximately 90 percent, with approximately 95 percent of the land under some type of intense management. The watershed residents have supported expansion of the project to the rest of the basin and demands for technical and financial assistance have been about four times expected levels. Subsequent interviews of demonstration project landowners found that they continued and expanded best management practices after the demonstration phase ended.

Following the Plum Creek Demonstration Project, the project was expanded into the rest of the Lower Bad River drainage and a TMDL was developed. The TMDL called for a reduction of 30% in Bad River sediment delivery to Lake Sharpe from the 3.25 Million tons per year measured by the USGS and Corps of Engineers. Data released by the Corps of Engineers in 2001 show that the Bad River currently delivers 1.95 Million tons of sediment per year. This is a 40% reduction, based on an average of USGS data from 1972 through 1997, and exceeds the TMDL goal. A linear regression of the same data base from 1948 through 2000 shows a 50% reduction in sediment delivery. The Bad River Project continues to implement BMPs in the lower watershed.



Appendix A – Information and Education Project Matrix

ACTIVITY	PRIMARY TARGET AUDIENCE	PRIORITY AREA	DENR PROGRAM INTERFACE	PRIMARY PROJECT PARTNERS	IMPLEMENTATION STATUS
Volunteer Watershed Activities Citizens Monitoring	General Urban/Rural	TMDL	Surface Water	SD Lakes & Streams Assoc. SD Discovery Center Local Organizations Water Development Districts	Ongoing. Financial assistance provided by 319 Grants through DENR and RGI Grants from EPA. Water quality data collected by citizens' monitoring groups is stored in a database maintained by the SD Lakes and Streams Association. The data base can be accessed DENR's web site: http://www.state.sd.us/denr/DFTA/WatershedProtection/Voluntary.htm
Storm drain Stenciling	Urban	TMDL Nutrient Management	Surface Water Source Water	SD Lakes & Streams Assoc. SD Discovery Center Local Organizations Water Development Districts	
Adopt*A*Stream	General/Urban	TMDL Nutrient Management	Surface Water Source Water	SD Lakes & Streams Assoc. SD Discovery Center Local Organizations Water Development Districts	
Coordinated Resource Management	Agriculture General Adult/Urban	TMDL Nutrient Management	All Media Programs	SDACD Midwest Mediation NRCS USFWS US Forest Service Northwest Area Foundation	Complete/Ongoing. Facilitator training and process manuals funded through 319 Grant from DENR and Northwest Area Foundation. Process manual, "Getting Results from Public Involvement" and training for local groups available upon request.
Bootstraps	Farmers and Ranchers	TMDL	Pollution Prevention Ag Waste Workgroup	NRCS RC&Ds SDSU Extension Service SD Dept. of Ag SDACD & Conservation Districts SD Grasslands Coalition	Program development complete. Transfer to new user groups ongoing. Assistance to new groups and support of activities related to resource management plans developed available through 319 grant from DENR to SDACD.
Precision Farming	General Agriculture	TMDL Nutrient Management	Pollution Prevention Surface Water Source Water	SDSU Extension Service NRCS SDACD SD Dept. of Ag	Complete. Financial assistance provided through P 2 Program. Video produced was aired as a four part feature series on Today's Ag during January -February 2001.

No-till Farming	General Agriculture	TMDL Nutrient Management	Surface Water Source Water	SDSU Extension Service NRCS SDACD SD Dept. of Ag SD No-till Association Ducks Unlimited	Complete/Ongoing. 319 funded project segment complete. Project continuing with funding from other sources. The results of a survey conducted to determine barriers to the adoption of no-till farming by producers is available by accessing: http://www.state.sd.us/denr/DFTA/WatershedProtection/P2/Documents/NotillSurvey_Final_Report.pdf The <i>No-till Seeding Concepts</i> video produced is available by accessing the DENR web site at: http://www.state.sd.us/denr/DFTA/WatershedProtection/wporg.htm
BMP Training Silviculture	Timber Industry Resource Managers	TMDL Riparian Areas Sediment	Surface Water Source Water	SD Forest Resource Association SD Dept. of Ag USFS	Complete. Two workshops held summer 2000. Field audits of BMPs conducted summer 2001. Virtual tour of the audit sites is available at: http://www.hpcnet.org/timberaudit
Onsite Wastewater Treatment Systems	Home Owners Planning and Zoning	TMDL Nutrient Management Ground Water	Ground Water Source Water Pollution Prevention	Black Hills RC&D SDSU Extension Service	In progress. Two workshops held spring 2000. Additional outreach activities and production of a BMP video is in progress. Airing of the video as a feature series on Today's Ag is scheduled for December 2002.
Urban Stormwater	Public Works Depts.	TMDL Sediment	Pollution Prevention Surface Water Source Water	American Public Works Assoc. Municipal League	In progress. Completion of model prevention-based stormwater plans is scheduled for Feb. 2002. A stormwater workshop is planned for spring 2002.
BMP Training (Continued) Urban Sediment	Public Works Depts. Planning and Zoning Construction Industry	TMDLs Sediment	Pollution Prevention Surface Water Source Water	American Public Works Assoc. Municipal League NRCS	Complete/Ongoing. Slide set developed through NPS I&E Program. Workshop held spring 1996 with support through P2 Program. Workshop targeting construction industry is planned.

Riparian	General Agriculture Livestock Producers General Urban	TMDL Nutrient Management Sediment	Surface Water Source Water	SD Grassland Coalition NRCS RC&Ds SDSU Extension Service	Ongoing. Three field workshops on the use of vegetative methods held. East River Riparian Demonstration Project completed with financial support through 319 Program. Workshops using distance learning in combination with site specific field experiences in planning.
Grazing Management	Livestock Producers Resource Managers	TMDL Nutrient Management Sediment	Surface Water	RC&Ds NRCS SDACD & Conservation Districts SDSU Extension Service SD Dept. of Ag SD Grassland Coalition SDGFP	In progress. Project demonstration sites initiated through the SD Soil and Water Conservation Fund Grant, Bootstraps Program and watershed projects. Technical assistance for planning and implementation of grazing systems added through 319 grant award 2001. Information transfer activities include field days, a web site and video.
Manure Management Training and Video	Livestock Producers	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention	SDACD & Conservation Districts NRCS RC&Ds SDSU Extension Service	Ongoing. <i>Protecting Our Water</i> , a video describing AFO/CAFO requirements in SD was produced and aired over SDPBS. Copies available from local libraries and DENR. Training for permitted facility owners ongoing through SDSU-DENR partnership.
Exhibit	Livestock Producers General Adult/Urban	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water Ground Water	SDACD & Conservation Districts NRCS RC&Ds SDSU Extension Service SD Cattleman's Association	Ongoing. Exhibit at DakotaFest 1999, 2000 and 2001 was central activity for Managing Manure for Profit and the Environment Outreach Strategy. Exhibits at other major trade shows initiated. Funding provided by 319 and P2 Programs.
Manure Management (Continued)					
Publications	Livestock Producers General Adult/Urban	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water Ground Water	SDACD & Conservation Districts NRCS RC&Ds SDSU Extension Service SD Cattleman's Association Utah Dept. of Ag and Food	Ongoing. <i>Straight Talk on Manure</i> was produced to provide producers and the general public with "easily understood" information about the why, how and where to get manure management assistance. Funded through DENR 319 and P2 Programs and EPA Region VIII 104(b)(3) Grant to Utah Dept. of Ag

Phosphorus-Based Nutrient Management	Livestock Producers	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water Ground Water	SD Cattleman's Association SDSU Extension Service SDACD & Conservation Districts NRCS RC&Ds	and Food. Copies available from local extension and conservation offices or by accessing: http://www.state.sd.us/denr/DFTA/WatershedProtection/P2/Documents/Publications
Manure BMP Video	Livestock Producers General Rural /Urban	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water Ground Water	SDSU Extension Service SDACD NRCS	In Progress. Financial Assistance to identify BMP development needs provide to SD Cattleman's Assoc. through DENR's 1999 PPIS Grant from EPA. Funding for a project to complete field studies and transfer information need to develop P-based comprehensive nutrient management plans pending through a 319 I & E Grant to SDSU through DENR. Complete. Segments on different BMPs aired as a feature series on Today's Ag during Jan. -Feb 2001. Project funding provided by 319 I&E Grant through DENR. A copy of the video is available by accessing: http://www.state.sd.us/denr/DFTA/WatershedProtection/P2/Documents/Publications.htm
Manure Management (Continued)					
Fecal Coliform Strain Identification	Livestock Producers Public Works Directors General Rural /Urban	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water	SDSU Extension Service SD Cattleman's Association SD Pork Producers NRCS	
Web Site	Livestock Producers General Agriculture General Adult/Urban	TMDL AFO/CAFO Nutrient Management	Ag Waste Workgroup Pollution Prevention Source Water Surface Water Ground Water	SDSU Extension Service SDACD & Conservation Districts NRCS RC&Ds	In Progress. The project is designed to select, field test and calibrate a fecal coliform strain identification diagnostic tool to provide the State with a reliable, cost effective tool to better assess, develop and implement TMDLs for pathogens in surface water. Funding provided by DENR. P2 Program through a PPIS Grant from EPA. In development by SDSU and Ag Waste Team. Financial support for Ag Waste Team provided by a 319 Grant through DENR.

Interactive Display Touch Screen (Kiosk)	Middle & High School Students	TMDL Nutrient Management Forest BMPs	Surface Water Ground Water Source Water Pollution Prevention	SD Dept. of Ag Society of American Foresters SDSU Extension Service USFS SD Discovery Center & Aquarium	Funding for development of watershed related program segments and all hardware provided through 319 I&E. One unit on permanent loan to SD Discovery Center & Aquarium. Portable unit available for loan to local agencies and schools.
Conversion of Touch Screen to CD (<i>South Dakota Forest and Water Adventures</i>)	Middle and High School Students	TMDL Nutrient Management Forest BMPs	Surface Water Ground Water Source Water Pollution Prevention	SD Dept. of Ag Society of American Foresters SDSU Extension Service USFS SDACD SD School of Mines & Technology	Complete. Funding for conversion provided through 319 Program and project partners. Distribution to middle schools, environmental and resource management agencies and organizations in progress. To order a copy access: http://www.state.sd.us/denr/DFTA/WatershedProtection/P2/Documents/Publications
Interactive Display (Continued) Region VIII NPS CD	Middle & High School Students	TMDL Nutrient Management	Surface Water Ground Water Source Water Pollution Prevention	Region VIII State NPS Programs Utah State University	In progress. Funded by 319 grant from EPA to Utah State University. Distribution spring 2002.
Water Festivals	Elementary School Students	TMDL Nutrient Management	All Media Programs	Water Development Districts Conservation Districts Watershed Projects Colleges/Universities SD Discovery Center	Funds for initial development and coordination provided by 319 I&E Program. Continuing under local leadership. Financial assistance encouraged through watershed project I&E component.

Wetlands	General Rural/Urban	TMDL Nutrient Management	Surface Water Ground Water Source Water	SDACD & Conservation Districts NRCS RC&Ds SDSU Extension Service SD Dept. of Ag	Local watershed projects and environmental groups encouraged to include in project workplan I&E component or using funds available for wetlands from other sources Statewide project through I&E Program not planned at this time.
Project SAVE	Students – All Levels	General Environment TMDL Nutrient Management	Pollution Prevention All Media programs SD Geological Survey	SDSU SD Discovery Center Capital University Center	Curriculum development completed using state funds. Assistance for initial teacher training provided through DENR P2 Program. Offering program currently licensed to Capital University Center. K-12 modules being prepared for posting on DENR web site by SDGS. Publication of secondary modules planned through with SDSU.
Presentations, Exhibits and Demonstrations	General (Varies by topic)	TMDL Animal Waste Sediment Project Planning	Surface Water Source Water Ag Waste Pollution Prevention	Local, state and federal Agencies Organizations	Ongoing. Display materials purchased with 319 I&E and P2 funds. Exhibits and presentations available on variety of topics including TMDLs, project planning, GIS and P2 for use at conferences, fairs and other events as requested.
Project Coordinator Training	Watershed Project Coordinators	TMDL Project Areas	Pollution Prevention Financial Management	NRCS Conservation Districts Water Development Districts	Ongoing. Two -day project management and water quality monitoring training for local project managers held September 2000 in partnership with ND NPS Program. Next workshop planned for winter 2002.

Appendix B**319 MATCHING FUNDS**

as of 9/30/01

Grant	Federal Grant Amount	Federal Grant Expenditures thru 9/30/01	Match Required Against Federal Expend. To Date	Total Grant's Required Match	Total Match Documented
319 Implementation 89	\$1,594,000	\$1,594,000	\$1,062,667	\$1,062,667	\$1,315,016
319 Implementation 90	\$800,137	\$800,137	\$885,994	\$885,994	\$885,994
319 Implementation 91	\$655,851	\$655,797	\$437,198	\$437,234	\$437,199
319 Implementation 92	\$795,000	\$794,836	\$529,891	\$530,000	\$535,421
319 Implementation 93	\$1,090,839	\$1,090,839	\$727,227	\$727,227	\$779,175
319 Implementation 94	\$1,415,142	\$1,415,142	\$943,508	\$943,508	\$1,188,561
319 Implementation 95	\$1,699,669	\$1,699,669	\$1,133,119	\$1,133,119	\$1,154,183
319 Implementation 96	\$1,126,685	\$960,541	\$640,361	\$751,161	\$772,345
319 Implementation 97	\$1,253,790	\$930,761	\$620,507	\$835,902	\$1,376,603
319 Implementation 98	\$1,296,790	\$1,166,421	\$777,614	\$864,531	\$1,684,393
319 Implementation 99	\$2,791,400	\$1,053,759	\$702,506	\$1,861,025	\$721,773
319 Implementation 00	\$3,008,897	\$567,725	\$378,483	\$2,005,931	\$767,967
319 Implementation 01	\$3,267,900	\$56,330	\$37,553	\$2,178,600	\$24,159
Total	\$20,796,100	\$12,785,957	\$8,876,628	\$14,216,899	\$11,642,788